

## **Bioterrorism Deterrence: the Role of Public Health in Security**

**Margaret E. Kosal<sup>1</sup> and Ana Terron**  
**Sam Nunn School of International Affairs**  
**Georgia Institute of Technology**

This paper will explore the relationships between and impacts of re-emerging infectious disease on international security and the role of international and domestic public health infrastructure of reducing the threat of biological terrorism. What does the reemergence of polio say about the affect of a potential bioterrorist attack on the developed and the developing world? Re-emerging infectious disease and the lack of public health infrastructure is a novel model for indirect deterrence and dis-motivation to commit acts of biological terrorism by foreign bioterrorists. A bioterrorist attack, especially one with a contagious agent like smallpox or pneumonic plague, will impact the developing world substantially more than the U.S. or other nations with robust public health sectors. One only has to look as far as polio's reemergence in 2003 to see the very real repercussions, in terms of lives affected and cost, of a contagious virus on the developing world. This paper intent is to examine polio's reemergence in 2003, its subsequent spread, assess the implications for biological terrorism deterrence, and make recommendations with respect to international public health and security policy.

At the beginning of 2003, the complete eradication of polio appeared to be within the grasp of the World Health Association and its many partners. In 1998, the World Health Organization estimates there were over 365,000 new cases of polio; by early 2003, the rate of infection had declined to less than 1,000 new cases worldwide due to a vigilant vaccination effort.<sup>2</sup> That trend was interrupted in August 2003, however, when unfounded allegations of contaminated vaccines that would lead to sterility, hinder testicular development and cause AIDs ran rampant in northern Nigeria's most populous, predominantly Muslim State, Kano, which had adopted Sharia or Islamic law in 2000. What started with the refusal of local clerics to allow vaccination led to the reestablishment or importation of the poliovirus to fourteen countries that were previously disease-free.

Transport of the contagious virus was not limited to neighboring African states. The poliovirus moved through Sudan to Ethiopia crossing the Red Sea to Lebanon, Saudi Arabia and Yemen. The latter was been particularly severely affected, witnessing more than five hundred new cases in the first half of 2005 alone. The poliovirus spread as far as Indonesia, where it afflicted more than 150 people in a single year in two provinces, predominantly children.<sup>3</sup> Prior to this outbreak, Indonesia had been polio free for nine years. Genetic fingerprinting confirmed that the virus crippling children in Indonesia came from northern Nigeria through Sudan, most closely resembling an isolate recovered in Saudi Arabia in December 2004. A pilgrim returning from Mecca or a returning foreign worker is suspected to have brought the virus to the island of Java, across an ocean and thousands of miles from its source.

Countries that experience trends in poliovirus outbreaks appear to have a crucial commonality: social and political challenges impeding public health efforts that are the key to permanently eradicating polio. Before 2003, polio had largely been confined to a handful of countries; Nigeria, India, Pakistan and Afghanistan accounted for 93% of the world's cases.<sup>4</sup> Unlike the rest of the world, these four countries have never succeeded in interrupting the transmission of

wild type poliovirus. Confirmed cases of poliomyelitis in 12 other countries, such as Niger and Nepal resulted from importing the virus from neighboring countries where the virus was endemic, especially Nigeria. In places such as India, the center of the current circulation of the virus is in places where underserved people live, such as the minority Muslim population where 70% of cases occur.<sup>5</sup> Over the past few years, the effort to eradicate polio has been confronted with numerous challenges and outbreaks have resulted in twenty-five different countries, which were controlled only after more than two years of effort and at least \$400 million in supplemental immunization activities.<sup>6</sup>

Domestically, credible voices highlight unquestionable declines in our own public health infrastructure. Beyond the passive or re-active defense component as part of Homeland Security, recognizing how strong and comprehensive our system is comparatively should not be used as a rationale to keep stagnant or decrease investment in our public health infrastructure. Quite the contrary, the robust nature of our public health system is a strategic asset. In thinking about public health as purely a responsive or passive part of homeland security, current national security policy is missing the more pro-active role that it could play. As the presence of a ballistic missile defense system is supposed to be an existential deterrent itself, so is a strong public health system.

The role of a robust public healthcare system, compared to those of developing nations, will be explored for its deterrence capacity applying an empirically driven case study method against predominant theories of deterrence<sup>7</sup> and in comparison to other works considering the possibility of deterring bioterrorism.<sup>8</sup> Whether one is focusing on the next influenza pandemic, bioterrorism, or the use of biological weapons by a rogue state, the role of a robust public health system for 21<sup>st</sup> Century deterrence remains to be explored. There has not been a substantive consideration of our robust public health system as a strategic asset in a more active deterrence role.

---

<sup>1</sup> Corresponding author, Sam Nunn School of International Affairs, Georgia Institute of Technology, 781 Marietta St NW, Atlanta GA, phone: 404-894-9664, email: margaret.kosal@inta.gatech.edu

<sup>2</sup> Ebrahim Samba, Francis Nkrumah, and Rose Leke (2004) "Getting Polio Eradication Back on Track in Nigeria," *New England Journal of Medicine*, vol 350, pp. 645-646.

<sup>3</sup> Mark A. Pallansch and Hardeep S. Sandhu (2006) "The Eradication of Polio - Progress and Challenges," *New England Journal of Medicine*, 14 December, vol 355, pp. 2508-2511.

<sup>4</sup> P.D. Minor (2004) "Polio eradication, cessation of vaccination and re-emergence of disease," *Nature Reviews Microbiology*, vol. 2, no 6, pp. 473-482.

<sup>5</sup> David L. Heymann and R. Bruce Aylward (2004) "Eradicating Polio," *New England Journal of Medicine*, vol 351, pp.1275-1277.

<sup>6</sup> Stephen L. Cochi and Olen Kew (2008) "Polio Today: Are We on the Verge of Global Eradication?" *JAMA*, vol 300, no 7, pp. 839-841.

<sup>7</sup> Robert F. Trager and Dessislava P. Zagorcheva (2006/06) "Deterring Terrorism: It Can Be Done," *International Security*, vol 30, no 3, pp. 87-123; Doron Almog (2004-05) "Cumulative Deterrence and the War on Terrorism," *Parameters*, pp. 4-19; David K. Levine and Robert A. Levine (2006) "Deterrence in the Cold War and the 'War on Terror,'" *Defence and Peace Economics*, vol 17, no 6, pp. 605-617; and Mark H. Lunardi, *War in the Shadows: Deterrence and the Struggle Against Terrorism*, May 2001, DTRA report, DTIC # ADA406551..

<sup>8</sup> Gregory Koblentz (2003) "Pathogens as Weapons: The International Security Implications of Biological Warfare," *International Security*, vol 28, no 3, pp. 84-122; Susan Martin (2002) "The Role of Biological Weapons in International Politics: The Real Military Revolution," *The Journal of Strategic Studies*, vol 25, no 1, pp. 63-98; and Francisco Galamas (2008) "Biological Weapons, Nuclear Weapons and Deterrence: The Biotechnology Revolution," *Comparative Strategy*, vol 27, no 4, pp. 315-323